

**DRAFT MEETING MINUTES**  
**SENATE BILL 325 RULEMAKING WORKGROUP**  
**Tuesday, March 21<sup>st</sup> 2017**  
**1:00pm to 3:00pm**  
**Metcalf Building**  
**1520 E. Sixth Ave, Helena, MT 59620**

**PRESENT**

*Workgroup Members Present:*

*Chris Brick (phone)*

*Art Hayes (phone)*

*Tammy Johnson*

*Brenda Lindlief-Hall (phone)*

*Ella Smith*

*Peggy Trenk*

*Montana Department of Environmental Quality Staff Members Present:*

*Kirsten Bowers*

*Myla Kelly*

*Melissa Schaar*

*Timmie Smart*

*Amy Steinmetz*

*Mike Suplee*

*Eric Urban*

Ms. Amy Steinmetz called the meeting to order at 1:06 pm. The meeting commenced with introductions followed by a re-cap of the February 21<sup>st</sup> meeting.

- Arsenic standards selection process.
- Definition of Non-Anthropogenic Standard
- Proposed method of criterion selection including the dilution test, seasonality determination and criterion selection. DEQ is proposing the 50<sup>th</sup> percentile.
- Suggested non-degradation rule change.
- Protection of downstream water quality standards.
- Draft timeline for rulemaking- Part 1 and Part 2 running separately.
- MCA 75-222 Part 2

The minutes from the previous meeting were approved and will be posted on the website. Ms. Steinmetz moved the meeting to the first agenda item.

**MCA 75-5-222 part 2 (variances) rulemaking - Update and recap of rulemaking process**

Ms. Steinmetz said there were some minor changes between the last meeting and the draft MAR notice that went before the board.

- There are formatting changes, but no content changes. One example is under section 3(3).
- Under section 5, the word *expire* was changed to *reviewed* five years from its effective date.

Q: *But we want that time period. Can you review January of next year and again in October of next year?*

A: With expiration, it goes away all together and then something has to be done with it. With review you're not under the same timeline pressure.

Q: *Shouldn't we be specific about how often the review occurs?*

A: Yes, it says every 5 years.

Q: *So we pass rules and EPA reviews the rules and they're in effect. But then EPA finds some issue it, then what happens?*

A: If DEQ had already issued a bunch of variances under it, they could go back and disapprove them.

Q: *Why would you issue something that you might have to pull back?*

A: That's why we work closely with EPA to make sure they're going to be alright. But there have been ones sent back to DEQ not approved. The process took a year and DEQ has permit writing schedules and need to keep things moving along. We have been successful in not often running into this situation.

Ms. Steinmetz repeated the plan of going forward to the board next Friday to request the initiation of rulemaking. DEQ will then file the draft MAR notice on April 3<sup>rd</sup>, which will be published in the Montana Administrative Register on April 14th, which then opens the public comment period and the public hearing on June 1<sup>st</sup>. Ms. Steinmetz said DEQ will then respond to comments and go back to the Board to request adoption.

There were no questions or comments. Ms. Steinmetz moved the meeting to the next agenda item.

#### **MCA 75-5-222 part 1 (nonanthropogenic water quality standards)**

**Arsenic standard selection document** - DEQ sent the recommended arsenic criteria proposal to EPA and has not received feedback from them. Once the feedback is received it will be provided to the workgroup. Ms. Steinmetz moved the meeting to Ms. Melissa Schaar's presentation to illustrate the arsenic selection.

##### **Madison River criteria selection example: PowerPoint presentation**

- Started with review of the 3 sections of the Madison River (slide 2)
  1. YNP to Hebgen
  2. Below Hebgen to Ennis
  3. Below Ennis Lake to mouth of Madison
- Non-anthropogenic Standard Selection (NAS) Flowchart (slide 3) – questions on potential or existing dischargers and tests to determine the criteria.
- Dilution Test (slide 4)

Q: *Remind me why and how the < and > 1%.*

A: That came from permitting. They look at < and > 1% when looking at mixing zones. We tried to figure out where it originally came from, and it had to do with toxicity and if you were going to be lower than 1% you would be protective. If above 1% you have a risk of toxicity to organisms.

Q: *So the < and > 1% discharge volume compared to the flow?*

A: Compared to 7Q10. It is looking at a more protective and conservative situation.

Q: *So were looking at extreme low flow > and < 1% discharge into that low flow.*

A: Correct.

- Dilution Test – Permitted Discharges (slide 5). There are 3 permitted dischargers into the Madison River. The Ennis fish hatchery doesn't have a discharge limit for arsenic, but

there is arsenic coming from it. When doing the dilution test you want to look at the worst case scenario. The numbers for the fish hatchery are significant when compared to the WWTP.

- Dilution Test – Results (slide 6). The max flow of the dischargers over the 7Q10 volume. For the Madison below Hebgen to Below Ennis Lake station, the equation is  $30.34 \div 400 = 7.6\%$ . This is significant flow based off the potential of the fish hatchery. If you go back to the chart (slide 3) and see that it's  $> 1\%$ , resulting in an annual criteria. The other 2 stations are not significant, so you move onto the seasonality test.
- Seasonal Determination (slide 7)
  - Develop a flow duration hydrograph with USGS flow gauge data.
  - Determine average of the recorded flow.
  - Find the actual season by the inflection points.
  - Perform a Mann Whitney Test – a statistical test that tests the concentrations and difference between high and low flow periods. If it's significant there will be one annual standard from low flow months. If not significant, one annual standard from all months.
- Seasonal Determination Hydrograph (slide 8) – an average of 20 years of data of flow volume. Is there a difference between the concentrations in these months?
- Madison River below Ennis Lake: Model Derived Median Monthly Nonanthropogenic Arsenic Loads, Flow Rates, and Concentrations (slide 9). The pink months are the low flow months and blue are the high flow.

Q: *The first column is actual loads per month based on the data you've gathered over a period of time.*

A: Right, based on modeling. During the demonstration of natural I calculated a non-anthropogenic load for these segments of the river. This is the load where I took out anything anthropogenic.

- Seasonal Determination Results (slide 10) – Shows there is not a significant difference in concentration between the high and the low flow period. The concentrations don't vary enough between months to say statistically there are distinct seasons based on concentrations. This information defaults the NAS to an annual standard based on all months.
- Summary: NAS for the Madison River (slide 11) – An annual standard based on the median non-anthropogenic concentration for all months and all 3 segments.

Q: *Do you have an example of when there would be a seasonal standard? Why do we have that as a pathway?*

A: I actually ran a seasonality test on all 3 segments, but there isn't an example on the Madison River of a seasonal standard applying.

Q: *Could you go back to slide #9? Does seasonality have to be related to flow? If you look at arsenic concentration it looks like there's potentially more of a high season from December to May where arsenic is more concentrated in the stream. Does that not count as a season?*

A: Not based off of flow. Seasons are defined by the high and the low flow, which is based off the hydrograph.

Q: *So not based on concentration in the stream. So really what you're looking at is load if it's based on flow.*

A: Right. If you look at the load it's really hard to determine seasonality based off the load. The influences of the dams make it a bit quirkier.

Q: *I agree. If it's based on concentration in the river then arsenic concentration is not related to flow. But it does look like there is a potential season for higher arsenic and lower arsenic.*

A: The reason we wanted to look at flow was because it's not necessarily season that determines when you'll have the greatest effect from a discharge, but low flow. We wanted to make sure we were looking at the low flow season to ensure protection at this sensitive time of the year; because of less water for dilution, we're being protective with the numbers we were selecting. If we were looking at the Yellowstone River, the concentrations and the loads would match the hydrograph because you don't have the influence of the dam. Also, we're taking a 20 year record and averaging it. The dam management wasn't the same over those 20 years. We're also taking concentration that may not be representative over those 20 years and don't match up perfectly.

Q: *What would you hypothesize the reason for the greater concentration in December?*

A: Because of the data that's averaged over 20 year period with different dam management. It's not totally representative of the data that was mostly collected over the last 10 years. You also have the runoff that happens in May and June, but there is also retention time in the dams where it allows it to homogenize throughout the year. I can't explain why March and April would have such a high load.

Q: *Isn't that when Hebgen would start releasing to prepare for the runoff so the dam can accommodate that other water? I think that's probably when they're sending water downstream.*

A: Yes. And the highest concentrations are in January, February and March before runoff happens.

Q: *Is there any mechanism to look at a seasonal determination if there is a drastic difference in flow naturally? Based on the season? Even if the concentrations weren't hugely different.*

A: We would use the same model for any stream. Can you clarify your question?

Q: *My understanding is that if the concentration is significantly different between high flow and low flow you use the seasonal determination.*

A: No, you default to a seasonal determination if the potential discharger is significant. Also, for a stream that might go dry and the 7Q10 is 0, that gets a more conservative criterion associated with it.

Q: *Is there anything from this that surprised you?*

A: Ending up with an annual standard for all three. This could be different with the Yellowstone. But it's cool how you develop these models for the different segments and it works. We also developed a way for determining a statistical analysis to determine if we have sufficient data to determine a standard. We applied this to the Madison River and it shows you how much data you need to formulate a valid standard.

Ms. Kelly pointed out that although they're not seeing it in this example, DEQ is creating the process for scenarios where a seasonal standard would apply in situations where you have a discharger that has very little potential of changing the concentration in the river. Ms. Schaar thinks it's possible that on the Yellowstone River they may end up with annual standards based on low flow concentrations because there is such seasonality. She doesn't think the discharger is significant.

Q: *During the low-flow period, even in the Yellowstone, wouldn't the arsenic load be higher?*

A: No. The concentration would be higher.

Q: *It's contributing its load on a regular basis, right?*

A: Right. The highest load is during the high flow, but the concentration is less, especially on the Yellowstone because there is high proportion of entrenchment of sediment that has arsenic.

Q: *It seems to me that this is a pretty conservative approach, if people are concerned about it.*

A: If there's any question about whether a discharger could change the distribution and affect the uses, then yes. But we are trying to allow less stringency at times when it's not an issue. We could say we're going to do an annual median concentration everywhere, which would be the most conservative approach. But we are trying to allow for situations where the discharger is not going to change the waterbody.

Ms. Kelly added that this also has a conservative side to it because it's based on the 7Q10.

Ms. Schaar asked for any more questions. There were none.

Ms. Steinmetz moved to the next agenda item.

#### **Next steps**

- **General guidance** – DEQ is waiting for EPA's response. Not aware of other states that have selected a criteria this way.
- **Madison River demonstration of natural and standard selection documents** – Two documents ready for review; one is the demonstration of non-anthropogenic for the Madison and is under internal review. The other is the non-anthropogenic standard (NAS) for the Madison.

Ms. Kelly told the group that feedback from EPA is an important part but it may not happen by April 18<sup>th</sup> meeting. The group thought it would be appropriate to move the meeting to later in April, first part of May or soon after DEQ hears from EPA.

The meeting adjourned at 2:15 pm.